

## December 2005 Update

### Central City/Clear Creek Superfund Site Idaho Springs, Colorado (Review Date 9/30/04)

#### *Highlights Since the 2004 5-Year Review*

- **Drainage collected and treated at Argo Water Treatment Plant March 2006.**
- **Completed run-on/run-off controls August 2005**
- **Remedial Design Operational Unit (OU) 4 underway**

**Brief Site History:** Clear Creek/Central City Superfund Site is located on the east slope of Colorado's Front Range, approximately 30 miles west of Denver. The site is transected by the Colorado Mineral Belt, rich in minerals, and as a result the area has been heavily mined, beginning with the discovery of placer gold in Idaho Springs in 1859 and followed quickly by the first lode discovery in Gregory Gulch.

Historic mining caused modern era problems. Placer mining resulted in the removal of stream substrate and the relocation of stream channels. Mine tunnels continue to drain acidic and metal laden water. Mine waste and mill tailings piles were left unprotected throughout the watershed. Metals including iron, zinc, copper, cadmium, manganese, lead and arsenic entered into Clear Creek and its tributaries and negatively impacted the ecology of the river.

Modern urbanization has also impacted Clear Creek. Nearby towns have encroached on the creek, the construction of highways and an interstate have caused significant channelization of Clear Creek and created runoff of vehicle waste, traction sand and chemical deicer from the roadway. The legalization of gaming in the area has increased traffic, impacted the North Fork of Clear Creek and has led to the removal of steeply sloped hillsides to allow casino development.

The site was added to the NPL in September 1983. Over the next several years the EPA had initiated Remedial Investigations and Feasibility Studies and three removal actions at the site. There are three designated operable units: OU1 to address treatment of acid mine drainage from five mine tunnels; OU2 for remediation of mine tailings and waste rock in the immediate proximity of the five discharging tunnels and; OU3 for control of surge events from the Argo Tunnel.

**Cleanup Activities Completed:** The following cleanup activities have been completed.

- 1999: CDPHE began high-flow and low-flow surface water monitoring on Clear Creek below the Burleigh Tunnel
- 1998: one of the wetland components was decommissioned and the other component operated until 1999
- April 1998: the Argo Water Treatment Plant was completed

- August 1993: pursuant to the OU3 ROD a passive treatment wetland was constructed as a pilot scale demonstration project at the portal of the Burleigh Tunnel.
- September 30, 1991: the Record of Decision (ROD) was signed for OU3

**Current Status:** A ROD for OU4 was signed 9/29/04 for the cleanup of the North Fork of Clear Creek and its tributaries as well as Quartz Hill, Gregory Incline, and National Tunnel mine discharges, although remedial actions newly identified in the ROD need to be implemented. A public meeting was held in August 2004 to discuss alternatives including the preferred alternative for cleanup of OU4. In September 2004 the Five Year Review and update of the Community Involvement Plan was completed. In 2003 the OU3 ROD for the Burleigh Tunnel was amended and a public meeting was held to discuss the proposed cleanup plan.

**Summary of Protectiveness:** A determination of the protectiveness of the remedies cannot be made because site actions are not complete. A determination of protectiveness will be obtained by completing a comprehensive sampling of Clear Creek once the remedy is complete and operational. In the interim, exposure pathways that could result in unacceptable risks to human health are being controlled. The remedies that have been completed in the site remain protective.

**Issues Impacting Protectiveness:** A few issues that do not immediately impact the protectiveness of the remedy were noted. The following table summarizes the status of the follow-up actions addressing these issues.

**Five-Year Review Update Table  
(Review Date 9/30/04)**

Issue	Recommendations/ Follow-up	Follow-up Actions (Status/ Due Date)	Status of Follow- up Actions 12/05	Resp. Party
1) Lack of Operations and Management records	Develop a database to record the responsible parties for O&M at each site and to track required O&M performance	12/2005	On-going	EPA and CDPHE
2) Lack of Institutional Controls record-keeping	Evaluate IC effectiveness where waste was left in place. Implement ICs as necessary. Develop a database to consolidate the information.	3/2005	Pending resolution on site wide repository.	EPA and CDPHE

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3) Big Five adit discharge still under interim waiver	Final decision needs to be made.	9/2005	Drainage collected and treated at Argo Water Treatment Plant March 2006.	EPA and CDPHE
4) Argo waste pile not capped	Prepare an Explanation of Significant Differences (ESD) to reflect changes made to Argo waste pile remedy.	6/2005	Remedial Action completed August 2005.	CDPHE
5) Repository not included in decision documents	Document in an ESD to OU3 ROD decision to pursue a local repository.	9/2005	ROD Amendment being drafted. Expected completion July 2006.	CDPHE
6) OU3 work not complete	Complete outstanding remedial actions identified in the OU3 ROD	On-going	On-going	CDPHE
7) OU4 work not complete	Complete the remedial actions identified in the newly completed OU4 ROD.	On-going	Remedial Design underway.	CDPHE